

PATENT

REMARKS

This paper is responsive to Office Action dated October 5, 2004. Claims 1-23 were examined. Claims 12-22 were allowed. Claims 9 and 10 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant appreciates the indication of allowability.

Rejections Under 35 U.S.C. §102

Claims 1, 4, and 23 are rejected under 35 U.S.C. §102(b) as being anticipated by "A simple and correct shared queue algorithm using Compare and Swap" by Stone (hereinafter "Stone"). In addition, claims 1 and 3-5 are rejected under 35 U.S.C. §102(b) as being anticipated by "A Nonblocking Algorithm for Shared Queues Using Compare and Swap" by Prakash (hereinafter "Prakash"). Applicant respectfully traverses these rejections.

Stone discloses a non-delaying technique, but specifically states that "this queue algorithm is not non-blocking" (p. 504). Stone cannot anticipate claim 1 because Stone is not non-blocking. Claim 1 is also rejected with Prakash. Although Prakash states that if "the head and the tail of the queue are different, serial changes may be made simultaneously at the head and at the tail" (p. 551), the Enqueue procedure includes a state entitled "Cooperate in dequeuing the object" (p. 552). Prakash is directed to a FIFO queue, and the opposing-end access operations in Prakash are dequeue and enqueue operations. If an enqueue cooperates with a dequeue, then an enqueue and a dequeue cannot be characterized as disjoint. Hence, Prakash does not disclose or suggest "wherein, at least for those of the valid states other than the one or more boundary condition states, opposing-end ones of the access operations are disjoint" as recited in claim 1.

In rejecting claim 23, the Office refers to a section of Stone that discusses liveness properties and the non-delaying character of Stone's algorithm. However, nothing in the Office Action or in Stone identifies any disclosure or suggestion of "means for coordinating competing pop operations...employing an atomic operation to disambiguate a retry state and a boundary condition state of the concurrent shared object based on then-current contents of one, but not both, of the

PATENT

first- and second-end identifier stores and an element of the concurrent shared object corresponding thereto" as recited in claim 23.

Although Stone includes references to success of enqueue operations, there is no disclosure or suggestion for coordinating competing pop operations. In addition, the Office has not identified, and Stone does not include, any disclosure or suggestion for employing an atomic operation to disambiguate a retry state and a boundary condition state. The dequeue pseudocode presented in Stone employs a compare-and-swap-double (CSDBL) to determine whether a dequeue is competing with an enqueue and to modify end pointers. There is no disclosure or suggestion of Stone employing the CSDBL to disambiguate as recited in claim 23.

Rejections Under 35 U.S.C. §103

Claims 2 and 6-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Stone. Claim 11 is rejected under 35 U.S.C. §103(a) as being unpatentable over Prakash. Applicant respectfully traverses these rejections.

With regard to claim 8, Stone is directed to a queue, and does not disclose or suggest a circular buffer. Although the Office takes Official Notice that a circular buffer is well known in the art, Applicant respectfully submits that Stone does not disclose or suggest mediating concurrent non-blocking access "by performing during execution of each of the access operations, an atomic update of a respective one of the opposing-end indices and of an array element corresponding thereto" as recited in claim 8. Stone fails to disclose or suggest a technique for operating on a circular buffer.

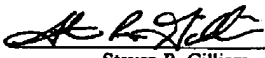
For at least the reasons above, independent claims 1 and 23 are allowable over Stone and Prakash. In addition, the dependent claims 2 – 8, and 11 are also allowable at least for the reasons above and because they depend from the allowable independent claim 1.

Conclusion

In summary, claims 1 – 23 are in the case. All claims are believed to be allowable over the art of record, and a Notice of Allowance to that effect is respectfully solicited. Nonetheless,


PATENT

if any issues remain that could be more efficiently handled by telephone, the Examiner is requested to call the undersigned at the number listed below.

CERTIFICATE OF MAILING OR TRANSMISSION	
I hereby certify that, on the date shown below, this correspondence is being	
<input type="checkbox"/> deposited with the US Postal Service with sufficient postage as first class mail, in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.	
<input checked="" type="checkbox"/> facsimile transmitted to the US Patent and Trademark Office.	
 Steven R. Gilliam	<u>3-Jan-2005</u> Date

EXPRESS MAIL LABEL: _____

Respectfully submitted,


Steven R. Gilliam, Reg. No. 51,734
Attorney for Applicant(s)
(512) 338-6320
(512) 338-6301 (fax)